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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/578,056

03/15/2007

Mohammad R. Sayeh

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EXAMINER

NGUYEN, KHAI M

ART UNIT

PAPER NUMBER

2819

MAIL DATE

DELIVERY MODE

07/27/2007

PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

## Office Action Summary

Application No.

10/578,056

Applicant(s)

SAYEH ET AL.

Examiner

Khai M. Nguyen

Art Unit

2819

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 15 March 2007.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-3, 5 and 9-20 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 16-20 is/are allowed.
- 6) ☒ Claim(s) 1-3, 11, 13, and 14 is/are rejected.
- 7) ☒ Claim(s) 5, 9, 10, 12 and 15 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 3/15/2007 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO/SB/08)  
Paper No(s)/Mail Date 5/2/2006
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: \_\_\_\_\_

## DETAILED ACTION

### *Information Disclosure Statement*

1. An initiated copy of the information disclosure statement (IDS) submitted on 05/02/2006 is attached herewith.

### *Specification*

2. The title of the invention is not descriptive. A new title is required that is clearly indicative of the invention to which the claims are directed.
3. The disclosure is objected to because it **contains an embedded hyperlink and/or other form of browser-executable code** (page 9, last paragraph). Applicant is required to delete the embedded hyperlink and/or other form of browser-executable code. See MPEP § 608.01.
4. The application has not been checked to the extent necessary to determine the presence of all possible typographical and grammatical errors. However, Applicant's cooperation is requested in correcting any errors of which he/she may become aware in the application.

### *Drawings*

5. This application has been filed with informal drawings, which are acceptable for examination purposes only. Formal drawings will be required when the application is allowed.
6. Figures **3B** and **4B** should be designated by a legend such as **--Prior Art--** because only that which is old is illustrated. See MPEP § 608.02(g). A proposed drawing correction or corrected drawings are required in reply to the Office action to

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avoid abandonment of the application. The objection to the drawings will not be held in abeyance.

### ***Claim Objections***

7. Claim 16, at line 7, "a fiber-optic coupler" should be changed to read –a **first** fiber-optic coupler; and at lines 13-14, "a second optical coupler" should be changed to – a second **fiber-optic** coupler--. Clarification is required.

8. Claim 19, at line 2, "the fiber-optic coupler" should be changed to –the fiber-optic couplers--. Clarification is required.

### ***Claim Rejections - 35 USC § 102***

9. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1-3, 11, 13, and 14 are rejected under 35 U.S.C. 102(b) as being anticipated by Pace P. E. et al. cited by the applicants (see IDS filed on May 2, 2006, reference CB), [hereinafter Pace].

Regarding claims 1, 11, Pace discloses a modulator (Fig. 5 and/or Fig. 12) a modulator, comprising:

an adder (an optical coupler – i.e., MZI device of Fig. 5) configured to add a first nonnegative continuous-time signal (RF signal) and nonnegative (0, 1) binary output signal (of comparator or quantizer of Fig. 5) to form a first nonnegative intermediate signal (output of the MZI device);

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a leaky integrator (Pace uses the term “accumulator” device of Fig. 5 which is equivalent to the leaky integrator of the applicants’ disclosure – see, second to the last paragraph of page 9) operably coupled to the integrator and configured to receive the first nonnegative intermediate signal (the output of the MZI device) and generate a second intermediate signal therefrom (an optical signal – output the accumulator);

an inverting bistable device (comparator/quantizer of Fig. 5) operably coupled to the integrator (accumulator of Fig. 5) and configured to receive the second intermediate signal (via an optical-to-electrical signal converter – i.e., detector device of Fig. 5), and generate the nonnegative binary output signal therefrom; and

feedback loop coupling the inverting bistable device (comparator/quantizer device of Fig. 5) and the adder (MZI device) to provide the nonnegative binary output signal to the adder.

Regarding claims 2-3, Pace discloses the modulator comprises an all-electronic device (Fig. 3) and/or an all-optical device (Fig. 5).

Regarding claim 13, Pace discloses a method (Fig. 5 and/or 12) for converting a continuous time signal (RF) to a binary signal (output of Fig. 5 or 12), comprising the steps of:

receiving a nonnegative continuous time signal (RF signal),

adding a nonnegative binary signal (output of the comparator/quantizer device of Fig. 5) to the nonnegative continuous time signal to produce a first nonnegative intermediate signal,

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processing the first nonnegative intermediate signal through a leaky integrator (accumulator of Fig. 5) to produce a second intermediate signal, and

processing the second intermediate signal through a an inverting bistable device (the comparator/quantizer) to produce the nonnegative binary signal.

Regarding claim 14, Pace discloses the method of claim 13, comprising a step of modulating a light signal (laser pulse of Fig. 5) with the nonnegative continuous time signal (RF signal).

***Allowable Subject Matter***

10. Claims 16-20 are allowed.

11. Claims 5, 9-10, 12, and 15 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

The following is a statement of reasons for the indication of allowable subject matter: the references of record neither reveal nor render obvious the recited combinations including: the leaky integrator which generates an integrated signal from output of the first fiber-optic coupler; the inverting bistable device configured to produce a binary signal from the integrated signal; and a second optical coupler coupled to the inverting bistable device configure to provide a binary output signal and the feedback signal.

***Prior Art***

12. The prior art made of record and not relied upon is considered pertinent to applicant's disclose (notes: all references cited on PTO-892 Form attached herewith).

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**Contact Information**

13. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Khai M. Nguyen whose telephone number is 571-272-1809. The examiner can normally be reached on 9:00 - 5:30 Monday-Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Rexford (Rex) Barnie can be reached on 571-272-7492. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

  
July 19, 2007

Khai M. Nguyen  
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571-272-1809